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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

Sergey Fedorovich Golovashchenko

Group Art Unit: 3724

Serial No.: 09/927,281

Examiner: Kenneth E Peterson

Filed: August 10, 2001

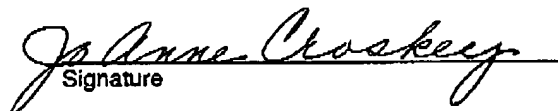
For: APPARATUS FOR TRIMMING METAL

Attorney Docket No.: FGT 1452 PA (200-1213)

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BRIEF ON APPEAL

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The following is an Appeal Brief pursuant to the Notice of Appeal filed on August 3, 2004. The present Brief is amended in response to Examiner's Notice of Non-Compliance received May 18, 2006.

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**I. Real Party in Interest**

The real party in interest in this matter is Ford Global Technologies, Inc., Dearborn, Michigan (hereinafter "Ford").

**II. Related Appeals and Interferences**

There are no other known appeals or interferences, which will directly affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

**III. Status of the Claims**

Claims 1-4, and 12-13 stand rejected in the Final Office Action. A copy of the claims on appeal is attached as an Appendix.

**IV. Status of Amendments Filed After Final**

Proposed amendments to the claims were submitted in response to the Final office action dated May 3, 2004. An advisory action dated June 14, 2004 refused to enter these amendments under the assertion they raised new issues.

**V. Summary of the Invention**

The present application is an apparatus for trimming metal 10 (p. 6, lines 3-4) for use with a blank 14 (p. 6, line 6). The apparatus 10 includes a steady blade 16 and a clamping pad 12 securing the blank 14 to the steady blade 16 (p. 6, lines 5-7). The apparatus 10 further includes a moving blade 18 movable past the steady blade 16 for trimming the blank 14 (p. 11, lines 6-7). The moving blade 18 moves substantially perpendicular to an upper surface 20 of the blank 14 (Claim 1). A radius 24 is formed on the leading edge 22 of the moving blade 18 and is adapted to reduce defects in the blank 14 associated with the trimming process (p 7, lines 9-26). A support element 30 is in communication with the scrap 26 and is adapted to reduce defects in the blank 14

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associated with the trimming process (p. 8, lines 13-28). The support element 30 moves substantially perpendicular to the upper surface 20.

Metal trimming processes are subject to numerous difficulties. One such set of difficulties arises from the generation of slivers and burs during trimming operations. Not only to the generation of such defects often require expensive additional finishing procedures, they can also corrupt fit and finish when the slivers find their way into subsequent stamping operations. Common methods of reduction of the gap 19 between the shearing edges can improve these defects but is often limited by functional tolerances and may still produce undesirable levels of defect production. The reduction of sliver production and burr generation remains a significant concern for metal blank processing fields.

There are two (2) independent claims. Claim 1 specifically recites the use of a steady blade 16 and a clamping pad 12 securing the blank 14 to the steady blade 16. The moving blade 18 is movable past the steady blade 16 for trimming the blank 14 wherein *the moving blade 18 moves substantially perpendicular to an upper surface 20 of the blank 14*. A radius 24 is formed on the leading edge 22 of the moving blade 18 and is adapted to reduce defects in the blank 14 associated with the trimming process. A support element 30 is in communication with the scrap 26 and is adapted to reduce defects in the blank 14 associated with the trimming process. *The support element 30 moves substantially perpendicular to the upper surface 20.*

Claim 12 is a method claim for reducing the production of defects during trimming operations. It includes the limitations of moving the moving blade 18 perpendicular to the upper surface 20 of the blank 14. It includes the limitation of

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reducing strain concentration caused by the moving blade 18 through the use of a radius 24 formed on the leading edge 22 of the moving blade 18. It further includes the limitation of keeping the scrap 26 substantially parallel to the scrap's original orientation during the trimming process.

Figures 3-7 illustrate the apparatus for trimming metal 10 as well as its claimed functioning.

#### VI. Issues

The following issues are presented in this appeal, the issues correspond directly to the Examiner's final grounds for rejection in the Final Office Action:

- (1) Whether claims 1-4,12 and 13 are properly rejected under 35 USC 102(b) as anticipated by Kohama (US 4,660,401).
- (2) Whether claims 1-3,12 and 13 are properly rejected under 35 USC 102(b) as anticipated by Madsen (US 3,167,985).
- (3) Whether claims 1-4,12 and 13 are patentable under 35 USC 103(a) over Kohama (US 4,660,401) in view of the Hamdi article (January 2000 Journal of Materials Processing Technology).
- (4) Whether claims 1-3,12 and 13 are patentable under 35 USC 103(a) over Madsen (US 3,167,985) in view of the Hamdi article.
- (5) Whether claims 1-4,12 and 13 are patentable under 35 USC 103(a) over Kohama (US 4,660,401) in view of Bennet (US 6,370,931).

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- (6) Whether claims 1-3, 12 and 13 are patentable under 35 USC 103(a) over Madsen (US 3,167,985) in view of Bennet (US 6,370,931).
- (7) Whether claims 1-4, 12 and 13 are patentable under 35 USC 103(a) over Kohama (US 4,660,401) in view of Li et al (US 5,820,999).
- (8) Whether claims 1-3, 12 and 13 are patentable under 35 USC 103(a) over Madsen (US 3,167,985) in view of Li et al (US 5,820,999).

## VII. Argument

### Ground 1 rejections

#### Claim 1

The Applicant respectfully asserts that ground 1 as defined above 35 USC 102(b) as being anticipated by Kohma (US 4,660,401) is improper and should be overturned. The claims stand rejected under the same principle used below for the 103(a) rejection based on Kohma in view of Hambi (Ground 3 rejections). The present rejection, however, utilizes Hambi as the basis for arguing that the use of a radius as a cutting edge is inherent as opposed to the below referenced rejection wherein Hambi is utilized in an obvious combination form rejection. The basis for such a rejection is that the Kohama reference teaches the limitations of the present invention with the exception of a radius on the cutting edge. The Hambi reference is then utilized by the Examiner to support an argument that every cutting edge shy of an exacting perfectly sharp cutting edge will inherently have some form of radius.

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The Applicant respectfully requests the Board's review of this rejection. The present application clearly claims a radius having a definition as more than simply a dull blade. The specification even provides a sample radius for this purpose, most notably something in far discrepancy from the 0.01mm radius the Hambi reference discusses. It should be noted that the Hambi reference fails to render the present invention either anticipated or obvious (as discussed below) and this assertion is supported by the very quote from Hambi put forth in the office action. Hambi teaches that a "large radius" such as 0.2mm causes burrs to form but that a cutting edge radius of 0.01mm (essentially no radius) makes better cuts. Thus essentially, Hambi teaches what the Applicant has asserted throughout prosecution, namely that the art taught away from utilizing a cutting edge radius. The Applicant has asserted through prosecution wherein the cutting edge has a radius (meaning something significantly more than a dull blade (which may be interpreted as minimal rounding, i.e. 0.01mm)). Again, the limitation of the term "radius" has been treated by both the Examiner and Applicant throughout prosecution as if it required something more than simply a dully blade. Furthermore, the Applicant has asserted during prosecution that this is the case and has even explicitly disclaimed radius' smaller than 0.1mm during prosecution to clarify the Applicant's terminology. Therefore, the clear and unambiguous limitation of the scope of the claims in these responses provides a clear limitation on the claim (Omega Engineering Inc. v. Raytek Corp. 334 F.3d 1314, 67 U.S.P.Q.2d 1321, Fed. Cir.(Conn.), Jul 07, 2003). As such, these limitations must be considered for patentability.

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In addition, the Applicant notes that the Kohama reference fails to teach the trimming apparatus or method claimed by the present invention. The Kohama reference teaches a punch press which is not the structural equivalent of the blank trimming apparatus and process of the present invention. Punch operations press cutting edges into a blank sheet within the perimeter of the blank and produce a part from the center. Trimming operations, however, trim the edges off a blank. The scrap is not trimmed away from the main body, rather the main body is punched away from the scrap. Although this may seem on its face a less than significant distinction, this is not the case. By punching a main piece out of the center of a blank, a contiguous blank portion is generated which is inherently less likely to bend and thereby generate slivers and burrs. Trimming the edges, as claimed by the present invention, on the other hand relies on slicing of segments of the outer perimeter (as is well known in the art) and therefore does not carry with it the natural contiguous nature of punching operations (as taught by Kohama) and therefore is far more susceptible to problems such as burrs and slivers. The Applicant submits, this further prevents the Kohama reference from anticipating the present invention.

Claim 2

Claim 2 is dependent upon claim 1 and recites that the support element reduces bending in the scrap. The Kohama reference fails to teach this limitation and actually intentionally induces bending in the blank as seen in Figures 17 and 18. The Applicant therefore respectfully requests the Board to reverse this rejection.

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Claim 3

Claim 3 deserves consideration for patentability independent of claim 1. Claim 3 contains independent limitations regarding maintaining orientation of the scrap in a trimming apparatus. Claim 3 has the limitation as: maintaining the scrap element substantially parallel.

This claim requires independent patentable consideration. The additional limitations are present on the very face of the claim. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. This claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained parallel. As argued under claim 1, Kohama is NOT a trimming reference but a stamping reference. Therefore, maintaining parallel scrap in a trimming apparatus *cannot* be taught by Kohama as the reference fails to teach any trimming apparatus. The claim is independently patentable. The combination of limitations is not taught or suggested in the Kohama reference and therefore the rejection should be reversed.

Claim 4

Claim 4 deserves consideration for patentability independent of claims 1 and 2. Claim 4 contains independent limitations regarding maintaining orientation of the scrap in a trimming operation. Claim 4 utilizes the structural limitation of the support used to maintain this orientation: a plate and an elastic pad.

This claim requires independent patentable consideration. Its additional limitations are present on the very face of the claims. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. This claim clearly has the



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limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). As argued under claim 1, Kohama is NOT a trimming reference but a stamping reference. Therefore, the method of controlling the scrap (*in a trimming operation*) in this group of claims *cannot* be taught by Kohama as the reference fails to teach any trimming operation. This claim is independently patentable. Its combination of limitations is not taught or suggested in the Kohama reference and therefore the rejection should be reversed.

Claim 12

Claim 12 deserves consideration for patentability independent of claim 1. Claim 12 contains independent limitations regarding a method of maintaining orientation of the scrap in a trimming operation. Claim 12 has the limitation as: keeping said scrap substantially parallel to said scrap's original orientation.

This claim requires independent patentable consideration. The additional limitations are present on the very face of the claims. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. The claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). As argued under claim 1, Kohama is NOT a trimming reference but a stamping reference. Therefore, the method of controlling the scrap (*in a trimming operation*) in this claim *cannot* be taught by Kohama as the reference fails to teach any trimming operation. These claims are independently patentable. There combination of limitations is not taught or suggested in the Kohama reference and therefore the rejection should be reversed.

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Claim 13

Claim 13 deserves consideration for patentability independent of claims 1 and 2. Claim 13 contains independent limitations regarding maintaining orientation of the scrap in a trimming operation. Claim 13 recites the limitation of preventing bending in the scrap.

This claim requires independent patentable consideration. Its additional limitations are present on the very face of the claims. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. This claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). As argued under claim 1, Kohama is NOT a trimming reference but a stamping reference. Therefore, the method of controlling the scrap (*in a trimming operation*) in this group of claims *cannot* be taught by Kohama as the reference fails to teach any trimming operation. This claim is independently patentable. Its combination of limitations is not taught or suggested in the Kohama reference and therefore the rejection should be reversed.

Ground 2 rejectionsClaim 1

The Applicant respectfully asserts that ground 2 as defined above 35 USC 102(b) as being anticipated by Madsen (US 3,167,985) is improper and should be overturned. The basis for this rejection is essentially the same as for the Kohama reference. The Applicant respectfully requests reversal of this rejection as well. The Applicant notes that Madsen fails to teach the leading edge having a radius as claimed by the present invention. At best Madsen illustrates a chamber on the trailing edge of

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the blade. In addition, as mentioned above, Madsen as well is a punch operation rather than an edge trimming operation as claimed by the present invention. Furthermore, and most notably, the supports in the Madsen reference would fail to support the scrap such that it would move perpendicular to the upper surface as claimed by the present invention. In Madsen, the rubber supports are offset from the cutting blade such that a cantilever bending moment is induced in the scrap. Thus Madsen fails to insure perpendicular movement as both the scrap and the support move in an angular fashion relative to the upper surface. Therefore, Madsen fails to anticipate under four grounds 1) it operates as a punch not a blank trimmer 2) it fails to teach a radius on the cutting edge 3) it fails to support the scrap such that it either moves perpendicular to the upper surface of the blank 4) the Hambi reference utilized to support inherent radius in cutting edges is flawed as it actually supports quite the opposite laying the desire for the non-existent radius (0.01mm).

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Claim 2

Claim 2 is dependent upon claim 1 and recites that the support element reduces bending in the scrap. The combination with the recitations of claim 1 are not taught or suggested in the Madsen reference and therefore the rejection should be reversed.

Claim 3

Claim 3 deserves consideration for patentability independent of claim 1. Claim 3 contains independent limitations regarding maintaining orientation of the scrap in a trimming apparatus. Claim 3 has the limitation as: maintaining the scrap element substantially parallel.

This claim requires independent patentable consideration. The additional limitations are present on the very face of the claim. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. This claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained parallel. As argued under claim 1, Madsen is NOT a trimming reference but a punching reference. Therefore, maintaining parallel scrap in a trimming apparatus *cannot* be taught by Madsen as the reference fails to teach any trimming apparatus. The claim is independently patentable. The combination of limitations is not taught or suggested in the Madsen reference and therefore the rejection should be reversed.

Claim 12

Claim 12 deserves consideration for patentability independent of claim 1. Claim 12 contains independent limitations regarding a method of maintaining

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orientation of the scrap in a trimming operation. Claim 12 has the limitation as: keeping said scrap substantially parallel to said scrap's original orientation.

This claim requires independent patentable consideration. The additional limitations are present on the very face of the claims. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. The claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). As argued under claim 1, Madsen is NOT a trimming reference but a punching reference. Therefore, the method of controlling the scrap (*in a trimming operation*) in this claim *cannot* be taught by Madsen as the reference fails to teach any trimming operation. These claims are independently patentable. There combination of limitations is not taught or suggested in the Madsen reference and therefore the rejection should be reversed.

### Claim 13

Claim 13 deserves consideration for patentability independent of claims 1 and 2. Claim 13 contains independent limitations regarding maintaining orientation of the scrap in a trimming operation. Claim 13 recites the limitation of preventing bending in the scrap.

This claim requires independent patentable consideration. Its additional limitations are present on the very face of the claims. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. This claim clearly has a patentable combination of limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). As argued under claim 1, Madsen is NOT a trimming reference but a

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punching reference. Therefore, the method of controlling the scrap (*in a trimming operation*) in this group of claims *cannot* be taught by Madsen as the reference fails to teach any trimming operation. These claims are independently patentable. There combination of limitations is not taught or suggested in the Madsen reference and therefore the rejection should be reversed.

### Ground 3 rejections

#### Claim 1

The Applicant respectfully asserts that ground 3 as defined above 35 USC 103(a) patentability over Kohama (US 4,660,401) in view of the Hambi article is improper and should be overturned. The Applicant traverses these rejections based on identical arguments as posed above. Namely, that 1) the underlying references fail to teach the limitations of the present invention and that 2) the Hambi reference teaches away from the use of a radius on the leading edge by teaching that virtually perfectly sharp ( $<0.01\text{mm}$ ) blades should be utilized. The Applicant, therefore, requests reversal of these rejections.

#### Claim 2

Claim 2 is dependent upon claim 1 and recites the additional limitation that the support element reduces bending in the scrap. The cited references fail to teach this limitation or combination of limitations and therefore this combination serves as an independent basis for patentability. The combination of limitations is not taught or suggested in the Kohama or Hamdi references either alone or in combination and therefore the rejection should be reversed.

#### Claim 3

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Claim 3 deserves consideration for patentability independent of claim 1. Claim 3 contains independent limitations regarding maintaining orientation of the scrap in a trimming apparatus. Claim 3 has the limitation as: maintaining the scrap element substantially parallel.

This claim requires independent patentable consideration. The additional limitations are present on the very face of the claim. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. This claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained parallel. The combination of these limitations is not taught or suggested in the Kohama or Hamdi references either alone or in combination and therefore the rejection should be reversed.

#### Claim 12

Claim 12 deserves consideration for patentability independent of claim 1. Claim 12 contains independent limitations regarding a method of maintaining orientation of the scrap in a trimming operation. Claim 12 has the limitation as: keeping said scrap substantially parallel to said scrap's original orientation.

This claim requires independent patentable consideration. The additional limitations are present on the very face of the claims. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. The claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Kohama or Hamdi references either alone or in combination and therefore the rejection should be reversed.

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Claim 4

Claim 4 deserves consideration for patentability independent of claims 1 and 2. Claim 4 contains independent limitations regarding maintaining orientation of the scrap in a trimming operation. Claim 4 utilizes the structural limitation of the support used to maintain this orientation: a plate and an elastic pad.

This claim requires independent patentable consideration. Its additional limitation is present on the very face of the claim. This claim clearly has the combination of limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Kohama or Hamdi references either alone or in combination and therefore the rejection should be reversed.

Claim 13

Claim 13 deserves consideration for patentability independent of claims 1 and 2. Claim 13 contains independent limitations regarding maintaining orientation of the scrap in a trimming operation. Claim 13 recites the limitation of preventing bending in the scrap in combination with scrap orientation.

This claim requires independent patentable consideration. Its additional limitation is present on the very face of the claim. This claim clearly has the combination of limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Kohama or



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Hamdi references either alone or in combination and therefore the rejection should be reversed.

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**Ground 4 rejections****Claim 1**

The Applicant respectfully asserts that ground 3 as defined above 35 USC 103(a) patentability over Madsen (US 3,167,985) in view of the Hambi article is improper and should be overturned. The Applicant traverses these rejections based on identical arguments as posed above. Namely, that 1) the underlying references fail to teach the limitations of the present invention and that 2) the Hambi reference teaches away from the use of a radius on the leading edge by teaching that virtually perfectly sharp ( $<0.01\text{mm}$ ) blades should be utilized. The Applicant, therefore, requests reversal of these rejections

**Claim 2**

Claim 2 is dependent upon claim 1 and recites the additional limitation that the support element reduces bending in the scrap. The cited references fail to teach this limitation or combination of limitations and therefore this combination serves as an independent basis for patentability. This combination of patentably distinct limitations are not taught or suggested in the Madsen or Hamdi references either alone or in combination and therefore the rejection should be reversed.

**Claim 3**

Claim 3 deserves consideration for patentability independent of claim 1. Claim 3 contains independent limitations regarding maintaining orientation of the scrap in a trimming apparatus. Claim 3 has the limitation as: maintaining the scrap element substantially parallel.

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This claim requires independent patentable consideration. The additional limitations are present on the very face of the claim. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. This claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained parallel. The combination of these limitations is not taught or suggested in the Madsen or Hamdi references either alone or in combination and therefore the rejection should be reversed.

#### Claim 12

Claim 12 deserves consideration for patentability independent of claim 1. Claim 12 contains independent limitations regarding a method of maintaining orientation of the scrap in a trimming operation. Claim 12 has the limitation as: keeping said scrap substantially parallel to said scrap's original orientation.

This claim requires independent patentable consideration. The additional limitations are present on the very face of the claims. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. The claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Madsen or Hamdi references either alone or in combination and therefore the rejection should be reversed.

#### Claim 13

Claim 13 deserves consideration for patentability independent of claims 1 and 2. Claim 13 contains independent limitations regarding maintaining orientation of the

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scrap in a trimming operation. Claim 13 recites the limitation of preventing bending in the scrap in combination with scrap orientation.

This claim requires independent patentable consideration. Its additional limitations are present on the very face of the claim. This claim clearly has the combination of limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Madsen or Hamdi references either alone or in combination and therefore the rejection should be reversed.

#### Ground 5 rejections

##### Claim 1

The Applicant respectfully asserts that ground 5 as defined above 35 USC 103(a) patentability over Kohama (US 4,660,401) in view of Bennet (US 6,370,931) is improper and should be overturned. While the Office action states that Bennett teaches a rounding cutting edge, it should be distinctly pointed out that the present invention claims a radius on the leading edge of a moving blade. Bennett teaches no such radius on the trim punch (5) or blank engaging shredder (2), the two moving portions of the disclosed punch apparatus. Additionally, as previously argued regarding the underlying references, Bennett teaches a punch apparatus and not a trimming apparatus as claimed by the present invention. The Applicant respectfully calls the Board's attention to Figures 5,6,and 7 of the Bennett reference. These figures clearly illustrate the fundamental differences between the two technologies. The blank (6) in Bennett extends over the entire perimeter of the trim punch (5) (see

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col 7, lines 59-64). This provides a different mechanical reaction consistent with punch operations as compared to the mechanical reactions generated by the present invention and trimming apparatus. Trimming operations shear off edges of metal sheets while punching operations "punch" through the center. The two operations involve different mechanics and different structural responses and therefore different apparatuses. The rounding of the Bennett application is concerned with an even smooth surface for gears and does not discuss or contemplate burrs and splinters which tend to plague trimming operations. Furthermore, the Bennett references fails either alone or in combination with Kohama to teach utilizing a radius on the leading edge of the moving blade in combination with parallel movement support of the blank in order to eliminate slivers as taught and claimed by the present invention. Therefore, the Applicant respectfully requests reconsideration by the Board.

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Claim 2

Claim 2 is dependent upon claim 1 and recites the additional limitation that the support element reduces bending in the scrap. The cited references fail to teach this limitation or combination of limitations and therefore this combination serves as an independent basis for patentability. This combination of limitations are not taught or suggested in the Kohama or Bennet references either alone or in combination and therefore the rejection should be reversed.

Claim 3

Claim 3 deserves consideration for patentability independent of claim 1. Claim 3 contains independent limitations regarding maintaining orientation of the scrap in a trimming apparatus. Claim 3 has the limitation as: maintaining the scrap element substantially parallel.

This claim requires independent patentable consideration. The additional limitations are present on the very face of the claim. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. This claim clearly has the limitations of a radius cutting edge; used in a trimming operation; where the scrap is maintained parallel. The combination of these limitations is not taught or suggested in the Kohama or Bennet references either alone or in combination and therefore the rejection should be reversed.

Claim 4

Claim 4 deserves consideration for patentability independent of claims 1 and 2. Claim 4 contains independent limitations regarding maintaining orientation of the

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scrap in a trimming operation. Claim 4 utilizes the structural limitation of the support used to maintain this orientation: a plate and an elastic pad.

This claim requires independent patentable consideration. Its additional limitations are present on the very face of the claim. This claim clearly has the combination of limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Kohama or Bennet references either alone or in combination and therefore the rejection should be reversed.

#### Claim 12

Claim 12 deserves consideration for patentability independent of claim 1. Claim 12 contains independent limitations regarding a method of maintaining orientation of the scrap in a trimming operation. Claim 12 has the limitation as: keeping said scrap substantially parallel to said scrap's original orientation.

This claim requires independent patentable consideration. The additional limitations are present on the very face of the claims. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. The claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Kohama or Bennet references either alone or in combination and therefore the rejection should be reversed.

#### Claim 13

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Claim 13 deserves consideration for patentability independent of claims 1 and 2. Claim 13 contains independent limitations regarding maintaining orientation of the scrap in a trimming operation. Claim 13 recites the limitation of preventing bending in the scrap in combination with scrap orientation.

This claim requires independent patentable consideration. Its additional limitations are present on the very face of the claim. This claim clearly has the combination of limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Kohama or Bennet references either alone or in combination and therefore the rejection should be reversed.



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**Ground 6 rejections****Claim 1**

The Applicant respectfully asserts that ground 5 as defined above 35 USC 103(a) patentability over Madsen (US 3,167,985) in view of Bennet (US 6,370,931) is improper and should be overturned. Again, while the Office action states that Bennett teaches a rounding cutting edge, it should be distinctly pointed out that the present invention claims a radius on the leading edge of a moving blade. Bennett teaches no such radius on the trim punch (5) or blank engaging shredder (2), the two moving portions of the disclosed punch apparatus. Additionally, as previously argued regarding the underlying references, Bennett teaches a punch apparatus and not a trimming apparatus as claimed by the present invention. The Applicant respectfully calls the Board's attention to Figures 5,6,and 7 of the Bennett reference. These figures clearly illustrate the fundamental differences between the two technologies. The blank (6) in Bennett extends over the entire perimeter of the trim punch (5) (see col 7, lines 59-64). This provides a different mechanical reaction consistent with punch operations as compared to the mechanical reactions generated by the present invention and trimming apparatus. Trimming operations shear off edges of metal sheets while punching operations "punch" through the center. The two operations involve different mechanics and different structural responses and therefore different apparatuses. The rounding of the Bennett application is concerned with an even smooth surface for gears and does not discuss or contemplate burrs and splinters which tend to plague trimming operations. Furthermore, the Bennett references fails either alone or in combination with Madsen to teach utilizing a radius on the leading

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edge of the moving blade in combination with parallel movement support of the blank in order to eliminate slivers as taught and claimed by the present invention. Therefore, the Applicant respectfully requests reconsideration by the Board.

**Claim 2**

Claim 2 is dependent upon claim 1 and recites the additional limitation that the support element reduces bending in the scrap. The cited references fail to teach this limitation or combination of limitations and therefore this combination serves as an independent basis for patentability. This combination of limitations is not taught or suggested in the Madsen or Bennet references either alone or in combination and therefore the rejection should be reversed.

**Claim 3**

Claim 3 deserves consideration for patentability independent of claim 1. Claim 3 contains independent limitations regarding maintaining orientation of the scrap in a trimming apparatus. Claim 3 has the limitation as: maintaining the scrap element substantially parallel.

This claim requires independent patentable consideration. The additional limitations are present on the very face of the claim. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. This claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained parallel. The combination of these limitations is not taught or suggested in the Madsen or Bennet references either alone or in combination and therefore the rejection should be reversed.

**Claim 12**

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Claim 12 deserves consideration for patentability independent of claim 1. Claim 12 contains independent limitations regarding a method of maintaining orientation of the scrap in a trimming operation. Claim 12 has the limitation as: keeping said scrap substantially parallel to said scrap's original orientation. This claim requires independent patentable consideration. The additional limitations are present on the very face of the claims. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. The claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Madsen or Bennet references either alone or in combination and therefore the rejection should be reversed.

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Claim 13

Claim 13 deserves consideration for patentability independent of claims 1 and 2. Claim 13 contains independent limitations regarding maintaining orientation of the scrap in a trimming operation. Claim 13 recites the limitation of preventing bending in the scrap in combination with scrap orientation.

This claim requires independent patentable consideration. Its additional limitations are present on the very face of the claim. This claim clearly has the combination of limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Madsen or Bennet references either alone or in combination and therefore the rejection should be reversed.

Ground 7 rejectionsClaim 1

The Applicant respectfully asserts that ground 1 as defined above 35 USC 103(a) over Kohama (US 4,660,401) in view of Li et al (US 5,820,999) is improper and should be overturned. The Examiner asserts that Kohama teaches all of the cited limitations except the cutting edge of the moving blade 18 rounded to a radius 24. The Examiner asserts that Li shows a movable blade 18 to have a radius 24; and that it would have been obvious for one skilled in the art to have modified Kohama by making the cutting edge 22 rounded in order to eliminate slivers. The Applicant respectfully traverses these rejections, and requests reevaluation of these claims by the Board in light of the foregoing arguments.

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The Applicant respectfully calls the Board's attention to column 2, lines 45-62 of the Li et al reference. The Applicant calls attention to the fact that Li reference states "the use of a zero degree cutting angle has been found to produce an unacceptably high amount of slivers. [for use on aluminum]". The Li reference, therefore utilizes a radiused cutting edge in combination with an angled cutting arrangement (see Figure 2, the cutting blade approaches the blank from an angle). It should be noted that the Li reference is directed towards the same problems as the present invention, namely the elimination of slivers during the trimming of aluminum parts. It is equally significant to note that the Li reference in Table 1 found that a radiused blade when used at a zero degree cutting angle (perpendicular to the blank) is still quoted as producing significant slivers when used with small clearances (5%). The Li reference addressed this by angling the cutting angle.

The Examiner asserts that the support illustrated in Kohama would be obvious to combine with Li to arrive at the present invention. The Applicant respectfully disagrees and traverses this assertion. The Applicant notes that Kohama does not support the scrap as asserted by the office action. Kohama, rather, supports a continuously fed blank 129. Therefore, the support of the blank 129 in Kohama is dictated by the fact that additional, non-damaged, parts are intended to be cut out of the blank 129. The Kohama reference does not even address the use of a support 27 to reduce sliver generation. Therefore, it is improper to read a motivation to combine into either of the two references. Most significantly, however, the Applicant notes that Kohama was published more than 10 (ten) years prior to the filing of the Li et al reference. Li was directed to the same issue the present invention. Li itself

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recognized that a "zero degree cut results in the least amount of normal stress" (col 3, lines 32-34). And yet, Li found it necessary to introduce an increased cutting angle in order to reduce slivers even utilizing a cutting edge with a radius (thereby teaching away from any combination). If Kohama would be obvious to combine with the subject matter to arrive at the present invention, why would not Li utilize it as does the present invention to accomplish minimized slivers, with minimum clearance, and using a zero degree cutting angle. As the Li reference was directed to the same problem, and utilized a rounded cutting radius, and was filed more than a decade after the publication of Kohama, the Applicant submits that the combination is non-obvious and the present claims should be allowed.

Claim 2

Claim 2 is dependent upon claim 1 and recites the additional limitation that the support element reduces bending in the scrap. The cited references fail to teach this limitation or combination of limitations and therefore this combination serves as an independent basis for patentability. This combination of limitations is not taught or suggested in the Kohama or Li references either alone or in combination and therefore the rejection should be reversed.

Claim 3

Claim 3 deserves consideration for patentability independent of claim 1. Claim 3 contains independent limitations regarding maintaining orientation of the scrap in a trimming apparatus. Claim 3 has the limitation as: maintaining the scrap element substantially parallel.

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This claim requires independent patentable consideration. The additional limitations are present on the very face of the claim. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. This claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained parallel. The combination of these limitations is not taught or suggested in the Kohama or Li references either alone or in combination and therefore the rejection should be reversed.

**Claim 4**

Claim 4 deserves consideration for patentability independent of claims 1 and 2. Claim 4 contains independent limitations regarding maintaining orientation of the scrap in a trimming operation. Claim 4 utilizes the structural limitation of the support used to maintain this orientation: a plate and an elastic pad.

This claim requires independent patentable consideration. Its additional limitations are present on the very face of the claim. This claim clearly has the combination of limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Kohama or Li references either alone or in combination and therefore the rejection should be reversed.

**Claim 12**

Claim 12 deserves consideration for patentability independent of claim 1. Claim 12 contains independent limitations regarding a method of maintaining

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orientation of the scrap in a trimming operation. Claim 12 has the limitation as: keeping said scrap substantially parallel to said scrap's original orientation.

This claim requires independent patentable consideration. The additional limitations are present on the very face of the claims. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. The claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Kohama or Li references either alone or in combination and therefore the rejection should be reversed.

**Claim 13**

Claim 13 deserves consideration for patentability independent of claims 1 and 2. Claim 13 all contains independent limitations regarding maintaining orientation of the scrap in a trimming operation. Claim 13 recites the limitation of preventing bending in the scrap in combination with scrap orientation.

This claim requires independent patentable consideration. Its additional limitations are present on the very face of the claim. This claim clearly has the combination of limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Kohama or Li references either alone or in combination and therefore the rejection should be reversed.

**Ground 8 rejections****Claim 1**



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The Applicant respectfully asserts that ground 2 as defined above 35 USC 103(a) over Madsen (US 3,167,985) in view of Li et al (US 5,820,999) is improper and should be overturned. The Examiner asserts that Madsen teaches all of the cited limitations except the cutting edge of the moving blade rounded to a radius. The Examiner asserts that Li shows a movable blade to have a radius; and that it would have been obvious for one skilled in the art to have modified Madsen by making the cutting edge rounded in order to eliminate slivers. The Applicant respectfully traverses these rejections, and requests reevaluation of these claims by the Board in light of the foregoing arguments.

The Applicant respectfully incorporates the above arguments regarding the Li et al reference as put forth in the Kohama combination arguments. The Applicant reasserts that the Li reference, therefore utilizes a radiused cutting edge in combination with an angled cutting arrangement; is directed towards the same problems as the present invention; is still quoted as producing significant slivers when used with small clearances when used at a zero degree cutting angle; and addressed the problem by angling the cutting angle.

The Examiner asserts that the support illustrated in Madsen would be obvious to combine with Li to arrive at the present invention. The Applicant respectfully disagrees and traverses this assertion. The Madsen reference does not even address the use of a support to reduce sliver generation or sliver generation at all. Therefore, it is improper to read a motivation to combine into either of the two references. Most significantly, however, the Applicant notes that Madsen (in by far an even stronger showing than the Kohama reference) was published more than 30 (thirty) years prior

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to the filing of the Li et al reference. Li was directed to the same issue the present invention. Li itself recognized that a "zero degree cut results in the least amount of normal stress" (col 3, lines 32-34). And yet, Li found it necessary to introduce an increased cutting angle in order to reduce slivers even utilizing a cutting edge with a radius (thereby teaching away from any combination). If Madsen would be obvious to combine with the subject matter to arrive at the present invention, why would not Li utilize it as does the present invention to accomplish minimized slivers, with minimum clearance, and using a zero degree cutting angle. The zero-degree cutting angle produces a much more desirable cut surface on the metal rather than an angled surface as results from Li. As the Li reference was directed to the same problem, and utilized a rounded cutting radius, and was filed more that a three decades after the publication of Madsen, the Applicant submits that the combination is non-obvious and the present claims should be allowed

The Applicant thereby requests the Board to review the Examiner's rejection of these claims. Therefore, because the references are believed to be not properly combinable to arrive at the limitations of the present invention, Applicant respectfully requests the Board to reverse the Examiner's rejections.

#### Claim 2

Claim 2 is dependent upon claim 1 and recites the additional limitation that the support element reduces bending in the scrap. The cited references fail to teach this limitation or combination of limitations and therefore this combination serves as an independent basis for patentability. This combination is not taught or suggested in the

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Madsen or Li references either alone or in combination and therefore the rejection should be reversed.

Claim 3

Claim 3 deserves consideration for patentability independent of claim 1. Claim 3 contains independent limitations regarding maintaining orientation of the scrap in a trimming apparatus. Claim 3 has the limitation as: maintaining the scrap element substantially parallel.

This claim requires independent patentable consideration. The additional limitations are present on the very face of the claim. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. This claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained parallel. The combination of these limitations is not taught or suggested in the Madsen or Li references either alone or in combination and therefore the rejection should be reversed.

Claim 12

Claim 12 deserves consideration for patentability independent of claim 1. Claim 12 contains independent limitations regarding a method of maintaining orientation of the scrap in a trimming operation. Claim 12 has the limitation as: keeping said scrap substantially parallel to said scrap's original orientation.

This claim requires independent patentable consideration. The additional limitations are present on the very face of the claims. A 102(b) rejection should require an evaluation of the limitations claimed as a whole. The claim clearly has the limitations of a radiused cutting edge; used in a trimming operation; where the scrap is

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maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Madsen or Li references either alone or in combination and therefore the rejection should be reversed.

**Claim 13**

Claim 13 deserves consideration for patentability independent of claims 1 and 2. Claim 13 contains independent limitations regarding maintaining orientation of the scrap in a trimming operation. Claim 13 recites the limitation of preventing bending in the scrap in combination with scrap orientation.

This claim requires independent patentable consideration. Its additional limitations are present on the very face of the claim. This claim clearly has the combination of limitations of a radiused cutting edge; used in a trimming operation; where the scrap is maintained (parallel; from bending; by plate/elastic combination). The combination of these limitations is not taught or suggested in the Madsen or Li references either alone or in combination and therefore the rejection should be reversed.

**IX. Appendix**

A copy of each of the claims involved in this appeal, namely claims 1-4, 12 and 13, is attached hereto as Appendix A.

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**X. Conclusion**

For the reasons advanced above, Applicant respectfully contends that each claim is patentable. Therefore, reversal of all rejections is requested.

The Commissioner is hereby authorized to charge any fees or credit any overpayment to Deposit Account No. 50-0476.

ARTZ &amp; ARTZ PC

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**APPENDIX A**

1. An apparatus for trimming scrap from a blank comprising:  
a steady blade;  
a clamping pad securing the blank to said steady blade;  
a moving blade movable past said steady blade for trimming the blank,  
said moving blade moving substantially perpendicular to an upper surface of said blank;

a radius formed on the leading edge of said moving blade adapted to reduce defects in the blank associated with the trimming process; and

a support element in communication with the scrap and adapted to reduce defects in the blank associated with the trimming process, said support element moving substantially perpendicular to said upper surface.

2. An apparatus as described in claim 1 wherein said support element reduces bending in the scrap.

3. An apparatus as described in claim 1, wherein said support element maintains the scrap substantially parallel to its original orientation.

4. An apparatus as described in claim 1, wherein said support element comprises:

a plate; and

a elastic pad.

5. (Withdrawn) An apparatus as described in claim 1, wherein said support element comprises:

a plate; and

an elastic pad.

6. (Withdrawn) An apparatus as described in claim 1, wherein said support element comprises:

a plate; and

a spring element.

7-11. (Cancelled)

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12. A method of reducing the production of defects during trimming operations comprising:

holding a blank between a steady blade and a clamping pad;

moving a moving blade past said steady blade to trim scrap off of said blank, said moving blade moving perpendicular to an upper surface of said blank;

supporting said scrap to reduce defects in said blank associated with the trimming process;

keeping said scrap substantially parallel to said scrap's original orientation during the trimming process; and

reducing the strain concentration caused by said moving blade on said blank through the use of a radius formed on the leading edge of said moving blade.

13. A method as described in claim 12 wherein said supporting said scrap comprises:

preventing bending in said scrap during the trimming process.

14-16. (Cancelled)